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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,277	09/30/2003	A. Mufit Ferman	7146.0164	6561

55648 7590 08/13/2008

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EXAMINER	
GE, YUZHEN	
ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
08/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/676,277	FERMAN, A. MUFIT	
	Examiner	Art Unit	
	YUZHEN GE	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-15,17-21 and 23* is/are rejected.

7)☒ Claim(s) *6,16 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Examiner's Remark

Applicant's amendment, filed on 7/7/2008, has been received and entered into the file. The objection to claim 13 and 112 2nd paragraph rejection of claim 13 have been overcome in view of applicant's amendments/remarks and are hereby withdrawn. Claims 1-23 are pending.

According to the applicant's argument, the word statistic is defined as "a single term or datum in a collection of statistics" and the set of intensity values for the pixel is a collection of "statistics" and each of the intensity values is a "statistic" in that collection. Although the examiner does not agree that the set of intensity values for a pixel is a collection of "statistics" according to common usages of the term "statistics", the examiner will interpret the word "statistic" as explained by the applicant, that is, it can be the intensity value of a pixel.

Regarding applicant's argument that the examiner is improperly ignoring an affidavit removing Jarman as a prior art reference by showing a reduction to practice prior to the effective date of Jarman, the examiner disagrees. 37CFR 1.131.(b) clearly states that "**The showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference, or conception of the invention prior to the effective date of the reference coupled with due diligence from prior to said date to a subsequent reduction to practice or to the filing of the application. Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or declaration or their absence must be satisfactorily explained**". The evidence submitted by the applicants only shows that the actual reduction to practice by the applicant with date Sept. 22, 2003, which is after the effective date of Jarman's reference. Also dates on Pages 1-3 of the evidence are erased. Therefore the affidavit to overcome Jarman's reference is ineffective

because the evidence submitted is insufficient to remove Jarman's reference as prior art as explained in the previous office action.

Furthermore, the rejections of claims 12, 14 and 18-20 are based on another reference by Jarman et al (US Patent Pub. 2004/0240747) which has an effective filing date of 1/3/2003, not 2/19/2003.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7-15, 17, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Jarman et al (US Patent Pub. 2004/0184670).

Regarding claims 1, 7, and 23, Jarman et al teach a method to identify sub-regions of a multi-channel image as containing red-eye comprising:

converting and providing said multi-channel image to a modified multi-channel image wherein at least one of said channels is an enhanced luminance channel that has more than 60% of the luminance information of said multi-channel image and at least one of said channel is a saturation channel (paragraphs [0003], [0148], the lightness channel contains 100% luminance and therefore contains greater than 60% of the luminance information); and

identifying a sub-region of said image as containing a red-eye region based upon, at least in part, processing said saturation channel by applying a saturation mask to one or more pixels of said image, said saturation mask comparing the standard deviation of the saturation value of a respective pixel to a threshold (paragraphs [0083]-[0084], [0296]-[0297], [0319], [0322] and [0323]);

Regarding claim 2, Jarman et al teach the method of claim 1 wherein said standard deviation of said saturation value of a respective pixel is measured relative to the mean saturation of pixels in a neighborhood local to said respective pixel (paragraphs [0083], [0296], [0319], [0328], also inherent from definition of standard deviation).

Regarding claims 3 and 8, Jarman et al teach the method of claim 1 and claim 7 wherein said modified multi-channel image has hue, saturation, and intensity channels (paragraphs [0003], [0148]).

Regarding claims 4 and 9, Jarman et al teach the method of claim 3 and 8 wherein said saturation channel represents the relative bandwidth of the visible output from a light source (paragraphs [0003], [0148], inherent from the definition of saturation).

Regarding claims 5 and 10, Jarman et al teach the method of claim 4 and claim 7 wherein said hue is substantially the wavelength within the visible-light spectrum at which the energy output from a source is the greatest (paragraphs [0003], [0148], inherent from the definition of hue).

Regarding claim 11, Jarman et al teach the method of claim 7 wherein each channel of said multi-channel image is processed differently to identify said sub-region of said image (paragraphs [0021]-[0025], [0044]-[0048], [0309], [0313], Figs. 3-7, and Figs. 9-11, the thresholds and numbers are different for different channels).

Regarding claim 12, Jarman et al teach a method to identify sub-regions of a multi-channel image containing red-eye, said multi-channel image having at least a first channel and a second channel, said method comprising:

(a) identifying a sub-region of said image as containing a red-eye region based upon, at least in part, applying a first mask to said first channel, said first mask comparing a first statistic of at least one pixel of said image to a first threshold (paragraphs [0083]-[0084], [0296]-[0297], [0319], [0322] -[0323] and [0328]); and

(b) applying a second mask to said second channel, said second mask comparing a second statistic of at least one pixel of said image to a second threshold, said second statistic being a different property than said first statistic (paragraphs [0083]-[0084], [0296]-[0297], [0319], [0322], [0323] and [0328]).

Regarding claim 13 (interpreted), Jarman et al teach the method of claim 12 where said first statistic is the intensity value of said pixel in said first channel and said second statistic is the standard deviation of said pixel in said second channel (paragraphs [0021]-[0026], [0031],

[0161]-[0164], [0183], [0233]-[0246], [0262], [0309], [0313], [0083]-[0084], [0296]-[0297], [0319], [0322], [0323] and [0328]).

Regarding claim 14, Jarman et al teach the method of claim 12 wherein said first threshold is different than said second threshold (paragraphs [0021]-[0026], [0031], [0184], [0209]-[0218], [0218], [0233]-[0246], [0262], [0309], [0313], [0322]-[0323], [0328], [0338]).

Regarding claim 15, Jarman et al teach the method of claim 13 wherein said standard deviation of said saturation value of a respective pixel is measured relative to the mean saturation of pixels in a neighborhood local to said respective pixel (paragraphs [0083], [0296], [0319], [0328], also inherent from definition of standard deviation).

Regarding claim 17, Jarman et al teach the method of claim 13 wherein said second channel represents saturation (paragraphs [0021]-[0026], [0031], [0184], [0209]-[0218], [0218], [0233]-[0246], [0262], [0309], [0313], [0322]-[0323], [0328], [0338]).

3. Claim 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Jarman et al (US Patent Pub. 2004/0240747).

Regarding claim 12, Jarman et al teach a method to identify sub-regions of a multi-channel image containing red-eye, said multi-channel image having at least a first channel and a second channel, said method comprising:

(a) identifying a sub-region of said image as containing a red-eye region based upon, at least in part, applying a first mask to said first channel, said first mask comparing a first statistic of at least one pixel of said image to a first threshold (Fig. 21, paragraphs [0095]-[0099], [0104], Figs. 6 and 11-14, the lightness, which is a statistic as interpreted by the applicant, is compared with a threshold); and

(b) applying a second mask to said second channel, said second mask comparing a second statistic of at least one pixel of said image to a second threshold, said second statistic being a different property than said first statistic (paragraphs [0095]-[0099], [0104], Figs. 6 and 11-14, the saturation which is a statistic as interpreted by the applicant, is compared with another threshold).

Regarding claim 14, Jarman et al teach the method of claim 12 wherein said first threshold is different than said second threshold (paragraphs [0095]-[0099], [0104], Figs. 6 and 11-14, the threshold for the lightness and saturation are different).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 18 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarman et al (US Patent Pub. 2004/0184670) in view of Liang et al (US Patent 6,678,413 B1).

Regarding claim 18, Jarman et al teach the method of claim 12. However they do not teach the method comprising using a convex hull technique to identify contiguous regions. Liang et al teach a method comprising using a convex hull technique to identify contiguous regions when segmenting and identifying an object (col. 17, line 53-col. 18, line 6). Convex hull techniques are known to work and therefore they can be used to segment regions as shown in Figs. 14-22 by Jarman et al (In re KSR v. Teleflex Inc). It is desirable to represent and characterize an object by known techniques. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the convex hull method of Liang et al to represent and identify contiguous regions in the method of Jarman et al.

Regarding claim 20, Jarman et al teach a method to identify sub-regions of a multi-channel image containing red-eye, said method comprising:

(a) providing said multi-channel image comprising luminance, hue, and saturation channels, respectively wherein at least one of said channels substantially includes the hue of said image (paragraphs [0003], [0148]); and

(b) identifying a sub-region of said image as containing a red-eye region based upon, at least in part:

(i) filtering out selective pixels of said image based upon a first mask applied to said luminance channel, said mask comparing the luminance value of respective pixels in said image to a first threshold (paragraphs [0021]-[0026], [0031], [0161]-[0164], [0183], [0233]-

[0246], [0262], [0309], [0313], [0083]-[0084], [0296]-[0297], [0319], [0322], [0323] and [0328]);

(iii) thereafter applying a second mask to said hue channel, said second mask comparing the hue value of respective pixels in said plurality of contiguous regions to a second threshold (paragraphs [0021]-[0026], [0031], [0161]-[0164], [0183], [0233]-[0246], [0262], [0309], [0313], [0083]-[0084], [0296]-[0297], [0319], [0322], [0323] and [0328]);

(iv) subdividing said plurality of contiguous regions into a plurality of contiguous sub-regions based upon said second mask and a connected component technique (Figs. 14-22 and 26-33, paragraphs [0067]-[0070], [0159]-[0160], the techniques of finding edges and smoothing edges are considered connected component technique); and

(v) filtering out the pixels in selective sub-regions based upon a comparison of the aspect ratio of respective said sub-regions to a third threshold (paragraphs [0251], [0253]-[0256]).

However they do not explicitly teach (ii) thereafter applying a convex hull technique to group remaining pixels of said image into a plurality of contiguous regions. . Liang et al teach a method comprising using a convex hull technique to identify contiguous regions when segmenting and identifying an object and to group pixels of an image into a plurality of contiguous regions (col. 17, line 53-col. 18, line 6). Convex hull techniques are known to work and therefore they can be used to segment regions as shown in Figs. 14-22 by Jarman et al (In re KSR v. Teleflex Inc). It is desirable to represent and characterize an object by known techniques. Therefore it would have been obvious to one of ordinary skill in the art,

at the time of invention, to use the convex hull method of Liang et al to represent and identify contiguous regions in the method of Jarman et al.

Regarding claim 21, Jarman et al teach the method of claim 20 including the step of applying a third mask to said saturation channel said third mask comparing the standard deviation of the saturation value of respective pixels in said plurality of contiguous subregions to a fourth threshold (paragraphs [0021]-[0026], [0031], [0184], [0209]-[0218], [0218], [0233]-[0246], [0262], [0309], [0313], [0322]-[0323], [0328], [0338]).

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarman et al (US Patent Pub. 2004/0184670) in view of Liang et al, further in view of Luo et al (US Patent 7,035,461).

Regarding claim 19, Jarman et al and Liang et al teach the method of claim 18. However they do not explicitly teach wherein contiguous regions having a size less than a threshold are removed as potential red-eye regions, said threshold computed dynamically based on the size of the input image. In the same field of endeavor, Luo et al teach resizing the input image (Fig. 12, col. 14, line 55-col. 15, line 11, col. 16, lines 46-59) and comparing the contiguous regions of the resized image with a threshold and removing the regions having a size less than a threshold (col. 16, lines 7-14, Figs. 12-13). Depending on the size of the input image, the size of the red-eye is different also. Scaling the input image dynamically based on the size of the input image and then comparing the size of the contiguous regions with a threshold is equivalent to comparing the

non-scaled contiguous region with a threshold that is dynamically computed based on the size of the input image. It is desirable to be efficient and correct when detecting red-eye pixels by eliminating pixels that are impossible to be red eyes. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the method of Luo et al in the method of Jarman and Liang et al so that contiguous pixels are eliminated/removed as non red-eye pixels depending on the size of input image.

7. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarman et al (US Patent Pub. 2004/0240747) in view of Liang et al (US Patent 6,678,413 B1).

Regarding claim 18, Jarman et al teach the method of claim 12. However they do not teach the method comprising using a convex hull technique to identify contiguous regions. Liang et al teach a method comprising using a convex hull technique to identify contiguous regions when segmenting and identifying an object (col. 17, line 53-col. 18, line 6). Convex hull techniques are known to work and therefore they can be used to segment regions as shown in Figs. 14-22 by Jarman et al (In re KSR v. Teleflex Inc). It is desirable to represent and characterize an object by known techniques. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the convex hull method of Liang et al to represent and identify contiguous regions in the method of Jarman et al.

Regarding claim 20, Jarman et al teach a method to identify sub-regions of a multi-channel image containing red-eye, said method comprising:

(a) providing said multi-channel image comprising luminance, hue, and saturation channels, respectively wherein at least one of said channels substantially includes the hue of said image (paragraphs [0003], [0091]); and

(b) identifying a sub-region of said image as containing a red-eye region based upon, at least in part:

(i) filtering out selective pixels of said image based upon a first mask applied to said luminance channel, said mask comparing the luminance value of respective pixels in said image to a first threshold (paragraphs [0095]-[0098], [0104] and [0117], Fig. 6);

(iii) thereafter applying a second mask to said hue channel, said second mask comparing the hue value of respective pixels in said plurality of contiguous regions to a second threshold (paragraphs [0095]-[0098] and [0104], Fig. 6);

(iv) subdividing said plurality of contiguous regions into a plurality of contiguous sub-regions based upon said second mask and a connected component technique ([0095]-[0098], [0104], [0144], [0148], [0153]-[0157], Figs. 6, 10-19, , the techniques of finding edges and the technique applied to obtain Figs. 13, 15 and 18-19 are considered connected component technique); and

(v) filtering out the pixels in selective sub-regions based upon a comparison of the aspect ratio of respective said sub-regions to a third threshold (paragraphs [0131], [0134]-[0136]);

However they do not explicitly teach (ii) thereafter applying a convex hull technique to group remaining pixels of said image into a plurality of contiguous regions. . Liang et al teach a method comprising using a convex hull technique to identify contiguous

regions when segmenting and identifying an object and to group pixels of an image into a plurality of contiguous regions (col. 17, line 53-col. 18, line 6). Convex hull techniques are known to work and therefore they can be used to segment regions as shown in Figs. 14-22 by Jarman et al (In re KSR v. Teleflex Inc). It is desirable to represent and characterize an object by known techniques. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the convex hull method of Liang et al to represent and identify contiguous regions in the method of Jarman et al.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarman et al (US Patent Pub. 2004/0240747) in view of Liang et al, further in view of Luo et al (US Patent 7,035,461).

Regarding claim 19, Jarman et al and Liang et al teach the method of claim 18. However they do not explicitly teach wherein contiguous regions having a size less than a threshold are removed as potential red-eye regions, said threshold computed dynamically based on the size of the input image. In the same field of endeavor, Luo et al teach resizing the input image (Fig. 12, col. 14, line 55-col. 15, line 11, col. 16, lines 46-59) and comparing the contiguous regions of the resized image with a threshold and removing the regions having a size less than a threshold (col. 16, lines 7-14, Figs. 12-13). Depending on the size of the input image, the size of the red-eye is different also. Scaling the input image dynamically based on the size of the input image and then comparing the size of the contiguous regions with a threshold is equivalent to comparing the non-scaled contiguous region with a threshold that is dynamically computed based on the size of

the input image. It is desirable to be efficient and correct when detecting red-eye pixels by eliminating pixels that are impossible to be red eyes. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the method of Luo et al in the method of Jarman and Liang et al so that contiguous pixels are eliminated/removed as non red-eye pixels depending on the size of input image.

Allowable Subject Matter

9. Claims 6, 16, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A statement of reasons for the indication of allowable subject matter is presented in the previous office action dated Oct. 23, 2007 and will not be repeated here.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuzhen Ge whose telephone number is 571-272 7636. The examiner can normally be reached on 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yuzhen Ge

Examiner, Art Unit 2624

/Matthew C Bella/

Supervisory Patent Examiner, Art Unit 2624